

EXHIBIT 50

Professor Robert Topel's Reply
to the Supplemental Expert
Report of Hal J. Singer, Ph.D
(Redacted)

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UNITED STATES DISTRICT COURT FOR THE DISTRICT OF NEVADA

CUNG LE, et al.,

Plaintiffs,

v.

ZUFFA, LLC d/b/a ULTIMATE
FIGHTING CHAMPIONSHIP and UFC,

Defendants.

Case No. 2:15-cv-01045-RFB-PAL

**Professor Robert H. Topel's Reply to the
Supplemental Expert Report of Hal J. Singer, Ph.D.**

May 7, 2018

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TABLE OF CONTENTS

I. Introduction..... 1

II. Dr. Singer Has Attempted to Resolve Flaws with His Impact Regressions, But
His New Regressions Remain Incomplete..... 2

 A. Dr. Singer’s Measure of Promotional Expenditures Represent a Minority of
 Zuffa’s Investments 6

 B. After Controlling for Event Costs, There Is No Correlation Between Athletes’
 Wage Shares and “Foreclosure Share” 8

 C. Dr. Singer’s Revised Impact Regressions Ignore Event-Level Variation in
 Promotional Expenditures 10

 D. Dr. Singer’s Other Controls for Promotional Expenditures Are Inadequate and
 Incomplete 12

III. Conclusion 14

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I. INTRODUCTION

1. I am Robert H. Topel, the Isidore Brown and Gladys J. Brown Distinguished Service Professor of Economics at The University of Chicago Booth School of Business. I have been retained by counsel for Zuffa, LLC d/b/a Ultimate Fighting Championship and UFC (collectively, “Zuffa”) to serve as an expert in economics in the above-captioned case. My qualifications were described in my initial report in this matter,¹ and I have attached an updated curriculum vitae as Appendix A to this report.

2. My initial report responded to the August 31, 2017 report filed by Dr. Hal J. Singer on behalf of Plaintiffs in this matter.² I subsequently wrote a sur-rebuttal report,³ which responded to new analyses contained in Dr. Singer’s rebuttal expert report.⁴ Dr. Singer has now offered new analyses in a supplemental expert report that would have been possible to offer in his initial report; among other things, these new analyses modify the impact regression model contained in his initial report by attempting to control for some promoters’ promotional expenses using data that was available to him at the time he wrote his initial report.⁵ I have been asked by counsel for Zuffa to respond to these new impact regressions.

3. My work is ongoing, and I will supplement it if I become aware of new information that affects my conclusions. The materials that I relied on in forming my opinions are listed in Appendix B and are cited throughout my report. The complete details of the calculations that I describe in this report are contained in the computer programs that accompany the report. In

¹ Expert Report of Professor Robert H. Topel, *Cung Le, et al., v. Zuffa, LLC d/b/a Ultimate Fighting Championship and UFC*, Case No. 2:15-cv-01045-RFB-PAL (D. Nev.) (October 27, 2017) [hereinafter TOPEL REPORT] at § I.A. and Appendix B.

² Expert Report of Hal J. Singer, Ph.D., *Cung Le, et al., v. Zuffa, LLC d/b/a Ultimate Fighting Championship and UFC*, Case No. 2:15-cv-01045-RFB-PAL (D. Nev.) (August 31, 2017) [hereinafter SINGER REPORT].

³ Sur-Rebuttal Expert Report of Professor Robert H. Topel, *Cung Le, et al., v. Zuffa, LLC d/b/a Ultimate Fighting Championship and UFC*, Case No. 2:15-cv-01045-RFB-PAL (D. Nev.) (February 12, 2018) [hereinafter TOPEL SUR-REBUTTAL].

⁴ Rebuttal Expert Report of Hal J. Singer, Ph.D., *Cung Le, et al., v. Zuffa, LLC d/b/a Ultimate Fighting Championship and UFC*, Case No. 2:15-cv-01045-RFB-PAL (D. Nev.) (January 12, 2018) [hereinafter SINGER REBUTTAL].

⁵ Supplemental Expert Report of Hal J. Singer, Ph.D., *Cung Le, et al., v. Zuffa, LLC d/b/a Ultimate Fighting Championship and UFC*, Case No. 2:15-cv-01045-RFB-PAL (D. Nev.) (April 3, 2018) [hereinafter SINGER SUPPLEMENTAL] at ¶ 33 and Table A2.

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conjunction with the databases listed in Appendix B, these computer programs can be used to replicate the calculations referenced in my report.

II. DR. SINGER HAS ATTEMPTED TO RESOLVE FLAWS WITH HIS IMPACT REGRESSIONS, BUT HIS NEW REGRESSIONS REMAIN INCOMPLETE

4. My initial and sur-rebuttal reports included a critique of the impact regression prepared by Dr. Singer. For the first time in his supplemental report through the use of a new regression, Dr. Singer attempts to address the critique that Zuffa’s superior business acumen and promotional efforts caused it to grow relative to MMA rivals, attracting a larger share of top MMA athletes and generating greater revenues per event—procompetitive reasons for the patterns in athletes’ wage share and “foreclosure share” we observe. Specifically, Dr. Singer adds two new variables to his impact regression, both relating to certain promotional expenditures made by Zuffa and pre-acquisition Strikeforce as recorded in the companies’ annual financial data. But Dr. Singer’s attempt to remedy his impact regression fails for two fundamental reasons: (1) the data Dr. Singer use, and how he uses them, are incapable of estimating any meaningful effect of Zuffa’s promotional efforts on the compensation outcomes of Zuffa athletes, so it is virtually inevitable that he would not find any relationship between promotional activity and wage share; and (2) the data do not actually measure Zuffa’s or Strikeforce’s promotional efforts and productivity.

5. [REDACTED]

⁶ SINGER SUPPLEMENTAL at ¶ 33 (citation omitted).

⁷ SINGER SUPPLEMENTAL at ¶ 33 (citation omitted).

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[REDACTED]

6. Were his data left in the form he describes (*i.e.*, “Zuffa’s promotional expenditures per bout”), Dr. Singer’s regression would produce literally nothing: it would not even run. This is because of how regressions work. To estimate a coefficient for a particular variable, say X_I , in a regression, the procedure isolates the variation in X_I that is uncorrelated with (unpredictable from) all the other variables X_2, X_3, \dots, X_k in the regression. It then asks whether this “residual variation” in X_I is correlated with the dependent variable, Y , and calculates an estimated regression coefficient from this correlation. Existence of such “residual variation” in X_I is therefore essential; without it, it is mathematically impossible to estimate a coefficient for the variable X_I .

7. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

⁸ SINGER SUPPLEMENTAL at ¶ 33.

8.

A horizontal bar chart with 9 bars. The first bar is black and extends to approximately 70% on the scale. The remaining 8 bars are white with black outlines and extend to various lengths between 60% and 90%. No numerical labels or axis titles are visible.

Category	Percentage (%)
Black Bar	~70
White Bar 1	~85
White Bar 2	~90
White Bar 3	~88
White Bar 4	~92
White Bar 5	~95
White Bar 6	~82
White Bar 7	~88
White Bar 8	~95
Black Bar	~40

[illegible]

4

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10. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

11. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

12. These flaws in Dr. Singer’s new impact regression are fatal—one cannot learn anything useful from what he has done, and he has certainly not shown that Zuffa’s investments and superior business acumen are not important determinants of athletes’ wage share. Even ignoring these facts, Dr. Singer’s analysis is incomplete even if taken on his own terms. Dr. Singer claims to control for Zuffa’s non-athlete event-level promotional expenditures, but Dr. Singer only controls for an accounting measure of promotional expenditures, which is only a portion of Zuffa’s event-level investments and expenditures. He fails to control for or take into account other relevant event-level Zuffa expenditures which, as I show below, have a significant impact on the share of event revenues paid to athletes (*i.e.*, the dependent variable in Dr. Singer’s regression). When relevant Zuffa’s event-level expenditures are properly taken into account (even when using Dr. Singer’s fundamentally flawed specification of wage share as a dependent variable), the “impact” coefficient on Dr. Singer’s foreclosure share is statistically insignificant.

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13. In addition to these shortcomings, Dr. Singer's new regression cannot account for Zuffa's superior productivity in promoting and expanding its own events and MMA generally. This key point is distinguished from Dr. Singer's flawed empirical exercise because it focuses on Zuffa's superior business acumen and *productivity* in promoting MMA events, rather than Zuffa's *expenditures* on promoting those events.

A. DR. SINGER'S MEASURE OF PROMOTIONAL EXPENDITURES REPRESENT A MINORITY OF ZUFFA'S INVESTMENTS

14. [REDACTED]

¹⁰ SINGER SUPPLEMENTAL at ¶ 33 and n. 97.

¹¹ SINGER SUPPLEMENTAL at ¶ 33 and n. 97.

¹² SINGER BACKUP.

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[REDACTED]

[REDACTED] ³

15. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

16. To illustrate the importance of these investments made by Zuffa to Dr. Singer's impact regression, I reviewed the annual Zuffa profit and loss financial statements that Dr. Singer relied on and I categorized expenses in four ways: (1) promotional costs, (2) event production costs, (3) athlete compensation, and (4) other event costs. Exhibit 1 shows the annual average levels of promotional costs, event production costs, and other event costs for Zuffa events between 2008 and 2016.¹⁴ Without addressing the question of whether Zuffa's productivity in promoting MMA events increased over this period, two things are apparent in reviewing the exhibit.

17. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

¹³ SINGER BACKUP.

¹⁴ Exhibit 1 also reports Dr. Singer's per event measures of promotional expenses for Zuffa. My promotional expenses are lower than his because Dr. Singer includes non-event related promotional expenses, while I exclude these expenses.

¹⁵ The costs in Exhibit 1 are in expressed in 2016 dollars. I deflate using the CPI-U.

19.

19.

20.

8

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]¹⁹

21. **Dr. Singer’s new impact regression:** For ease of comparison, columns 1-3 of Exhibit 2 show the results of Dr. Singer’s original flawed impact regression using his measures of “foreclosure share” for each of the Tracked, Ranked, and Headliner input markets.

22. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

23. **The effect of missing data on Dr. Singer’s new impact regression:** [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

¹⁹ SINGER BACKUP. [REDACTED]

[REDACTED]

²⁰ [REDACTED]

[REDACTED]

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[REDACTED]

C. DR. SINGER'S REVISED IMPACT REGRESSIONS IGNORE EVENT-LEVEL VARIATION IN PROMOTIONAL EXPENDITURES

24. [REDACTED]

25. [REDACTED]

²¹ See Exhibit 3. [REDACTED]

²² TOPEL REPORT at § VII.B; TOPEL SUR-REBUTTAL at § II.C. *See also* TOPEL SUR-REBUTTAL at n. 25.

²³ SINGER SUPPLEMENTAL at ¶ 29.

²⁴ SINGER SUPPLEMENTAL at ¶ 33.

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[REDACTED]

26. [REDACTED]

27. This defect is compounded because Dr. Singer is apparently missing Strikeforce financial statements for 2008. To address the problem, he simply assumes that annual average Strikeforce promotional expenditures per event were identical in 2008 and 2009, thereby making it appear (in the context of his impact regression) that there is less variation in promotional expenditures than there likely actually was. Along with Dr. Singer's other errors in specifying his impact regression, the masking of year-to-year variation in promotional expenditures decreases the

²⁵ [REDACTED]

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likelihood that he would find a statistically significant effect of promotional expenditures on wage shares in his impact regression. But Dr. Singer has no basis for the assumption that promotional expenditures between those two years are the same.

28. [REDACTED]


D. DR. SINGER'S OTHER CONTROLS FOR PROMOTIONAL EXPENDITURES ARE INADEQUATE AND INCOMPLETE

29. [REDACTED]

²⁶ SINGER SUPPLEMENTAL at ¶¶ 29-31.

²⁷ SINGER SUPPLEMENTAL at ¶ 29.

30.



8

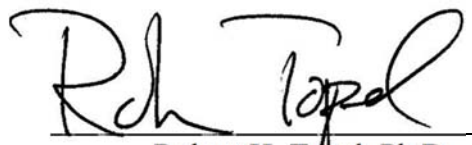
[illegible][illegible]

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[REDACTED]

III. CONCLUSION

33. This report contains a statement of my opinions regarding the revised impact regression offered by Dr. Singer in his supplemental report. While I confine my discussion in this report to Dr. Singer's revised impact regression, I do not concede the correctness of the remaining opinions that Dr. Singer offered in his supplemental report. Rather, Dr. Singer's supplemental report has not altered any of the opinions that I expressed in my earlier reports.



Robert H. Topel, Ph.D.
May 7, 2018

APPENDIX A: CURRICULUM VITAE

Robert H. Topel

CURRICULUM VITAE

April 2018

CURRENT POSITIONS

Isidore Brown and Gladys J. Brown Distinguished Service Professor of Economics,
Booth School of Business, The University of Chicago
Director, George J. Stigler Center for the Study of the Economy and the State
Co-Director, Energy Policy Institute at Chicago (EPIC)
Research Associate, National Bureau of Economic Research

EDUCATION

B.A. (with High Honors), University of California, Santa Barbara, 1974
Ph.D., University of California, Los Angeles, 1980

FIELDS OF SPECIALIZATION

Microeconomics, Labor Economics, Industrial Organization, Health Economics,
Economic Policy, Energy Economics, National Security Economics

PREVIOUS ACADEMIC POSITIONS

Professor of Economics, Graduate School of Business, University of Chicago, 1986-93
Kirby Distinguished Visiting Professor of Economics, Texas A&M University, 2006
Professor of Economics, Department of Economics, University of California, Los Angeles, 1986
Associate Professor of Economics, Department of Economics, University of California, Los Angeles, 1985-86
Associate Professor of Economics, Graduate School of Business, University of Chicago, 1983-85
Assistant Professor of Economics, Department of Economics, University of Chicago, 1980-83

OTHER AFFILIATIONS

Research Associate, National Bureau of Economic Research, 1984-present
Senior Fellow, the Milken Institute, 1999-present
Faculty Member, MacLean Center for Clinical Medical Ethics, The University of Chicago
Member, National Petroleum Council Taskforce on Transportation Fuels Supply and Infrastructure, 2010-2012
Fellow, Center for the Study of Poverty and Inequality, Stanford University, 2006-present

Member, Brookings Panel on Economic Activity, various years
Visiting Scholar, Board of Governors of the Federal Reserve, 1990
Research Associate, Economics Research Center, NORC, 1980—1990
Consulting Economist, The Rand Corporation, 1982—1989
Research Associate, Center for the Study of the Economy and the State, 1980—present
Faculty Research Fellow, National Bureau of Economic Research, 1981-83
Research Economist, Unicon Corporation, 1981-88
Consultant, U.S. Department of Labor, 1985-90
Partner, Chicago Partners LLC 1994-2008
Principal & Managing Director, Navigant Economics, 2008-2013
Board of Directors, Ingalls Hospitals and Ingalls Health Service, 2000-2012
Director, WGA Evans Scholars Foundation, 2011-present
Senior Consultant, Charles River Associates, 2013-present

EDITORIAL POSITIONS

Editor, *Journal of Political Economy*, 1993-2003
Board of Editors, *American Economic Review*, 1992-94
Associate Editor, *Journal of Labor Economics*, 1982-92
Editorial Board, *International Journal of the Economics of Business*, 1993-present
Member of the Advisory Board, ERN Labor Journals, 1998-present

HONORS & AWARDS

Kenneth J. Arrow Award, International Health Economics Association, 2007
Kirby Distinguished Visiting Professor, Texas A&M University, 2006
Research America Eugene Garfield Prize for Medical and Health Research, 2005
Elected Fellow, Society of Labor Economists, 2004
Elected Member, Conference on Research in Income and Wealth
Elected Founding Member, National Academy of Social Insurance
William Ladany Research Scholar, The University of Chicago, 1989-91
William Fishman Research Scholar, The University of Chicago, 1986-87
Smith Richardson Dissertation Fellowship in Political Economy, 1978-79
Foundation for Research in Economics and Education Fellowships, 1975-79
Chancellor's Intern Fellow, University of California, Los Angeles, 1975-79
University Fellow, Northwestern University, 1975
General Electric Dissertation Fellowship, 1978

TEACHING EXPERIENCE

Graduate Economic Theory I, II, III
Law, Economics and Business
Competitive Strategy
Advanced Topics in Labor Economics
Advanced Topics in Microeconomics
Managing the Workplace
Industrial Organization/Antitrust
Price Theory

OTHER PROFESSIONAL ACTIVITIES

Thompson Lecture (Keynote Address), Midwest Economic Association, 2000
Nominating Committee, American Economic Association, 1996, 1997
Program Committee, American Economic Association, 2006-2007
Organizer, Universities-NBER Research Conference: "Labor Markets in the 1990s," Cambridge, December 1989
Program Chair, Labor Economics, Econometric Society Meetings, December 1989
National Science Foundation Review Panel in Economics, 1998, 1999
Inaugural Keynote Lecture, Missouri Economics Conference, University of Missouri, 2001
Pihl Lecturer, Wayne State University, November, 2004
Keynote Address, Federal Reserve Bank of Cleveland Conference on Education and Economic Development, November, 2004
Kirby Lecturer, Texas A&M University, 2006
Huggins Lecturer, Department of Surgery Huggins Conference, The University of Chicago, May, 2007
Keynote Address, Conference Board of Canada Conference on Medical Research, Montreal, January 2009
Keynote Address, Council on Competitiveness Conference on Energy Policy, Argonne National Laboratory, May 2009
Keynote Address, The University of Chicago/RFF/University of Illinois Conference on *Energy Policy and the Economy*, Washington, D.C., January 2010
Keynote Address, Humana Health Economics Forum, Santa Fe Institute, 2011
Keynote Address, Toyota Sustainability Conference, La Jolla, 2011
Keynote Address, Conference on Health Policy, Arizona State University, 2013

UNIVERSITY SERVICE

Director, Undergraduate Program in Economics, 1980-83
Chairman, Graduate School of Business Curriculum Review, 1990-91
Committee on Graduate Education, 1992-94
Committee on Undergraduate Education, 1993-94
Council of the University Senate, 1992-94, 1995-97, 1999-2002, 2004-07, 2010-13
Committee of the Council of the University Senate, 2000-02, 2006-07
Chairman, Council of the University Senate Committee to Review and Interpret the University Statutes, 2012-13
Graduate School of Business Policy Committee, 1995-97, 1999-2001
Member, Presidential Search Committee, 1999-2000
Board of Directors, The University of Chicago Laboratory Schools, 1986-92, 1998-2007
Chairman, Director Search Committee, The University of Chicago Laboratory Schools, 2002-2003
Area Coordinator, PhD Program in Economics, 2002-2008
Director, George J. Stigler Center, 2007-2015
Director, The University of Chicago Energy Initiative, 2008-2010
Co-Director, Energy Policy Institute at Chicago, 2010-present

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The Welfare State in Transition, with Richard Freeman and Birgitta Swedenborg. Chicago: The University of Chicago Press for NBER, 1997.

Labor Market Data and Measurement, with John Haltiwanger and Marilyn Manser. Chicago: The University of Chicago Press for NBER, 1998.

Välfärdsstat i omvandling: Amerikanskt Perspektiv på den Svenska Modelten, with Richard Freeman and Birgitta Swedenborg. Författarna och SNS Förlag, 1995.

Measuring the Gains from Medical Research: An Economic Approach, with Kevin M. Murphy. Chicago: The University of Chicago Press (2003).

Reforming the Welfare State: Recovery and Beyond in Sweden, with Richard Freeman and Birgitta Swedenborg, Chicago, The University of Chicago Press for NBER, 2009.

Att Reformera Välfärdsstaten, with Richard Freeman and Birgitta Swedenborg, SNS Förlag, Stockholm, 2006.

Distributional Aspects of Energy and Climate Policy, ed. with Mark Cohen and Don Fullerton, Special Issue of the BE Journal of Economic Analysis and Policy, Spring 2011. Also, Edward Elgar Publishing, Surrey, UK, 2013.

Articles and Monographs:

“Layoffs, Inventories, and the Demand for Labor,” Ph.D. Dissertation, University of California, Los Angeles, December 1980.

“Unemployment Insurance: Survey and Extensions” (with F. Welch), *Economica* **47** (August 1980): 351-79.

“Inventory Adjustments, Industry Behavior, and the Business Cycle” (with A. Stockman), presented at the NBER Conference on Inventories and Business Cycles, March 1980.

“Inventories, Layoffs, and the Short-Run Demand for Labor,” *American Economic Review* (September 1982): 769-87.

“Experience Rating of Unemployment Insurance and the Incidence of Unemployment,” *Journal of Law and Economics* (April 1984): 61-90.

“On Layoffs and Unemployment Insurance,” *American Economic Review* (September 1983): 541-59.

“Equilibrium Earnings, Turnover, and Unemployment: New Evidence,” *Journal of Labor Economics* (October 1984): 500-22.

“Local Labor Markets,” Presented at Hoover Institution Conference on Labor Markets, January 1983. *Journal of Political Economy* **94** (June 1986, part 2): 111-43.

“Estimation and Inference in ‘Two-Step’ Econometric Models” (with K. M. Murphy), *Journal of Business and Economic Statistics* **3** (October 1985): 370-80.

“Employment Risk, Sectoral Shifts, and Unemployment,” (with G. Neumann), in *Studies in Search*, ed. N. M. Kiefer and G. R. Neumann. Oxford: Oxford University Press, 1989.

“Unemployment and Unemployment Insurance,” *Research in Labor Economics* **7** (1985): 91-135.

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“Financing Unemployment Insurance: History, Incentives, and Reform,” in *Unemployment Insurance: The Second Half Century*, ed. W. Lee Hansen and J. Byers. University of Wisconsin Press, 1990.

“Sectoral Uncertainty and Unemployment” (with L. Weiss), UCLA Department of Economics Working Paper No. 384, September 1985, in *Employment, Unemployment, and Labor Utilization*, ed. R. A. Hart. Boston: Allen & Unwin, 1988.

“The Housing Market in the United States” (with S. Rosen), *Journal of Political Economy* (August 1988): 718-40.

“What They Say or What They Do? The Use of Survey Data in Predicting Behavior” (with K. M. Murphy), Graduate School of Business, The University of Chicago, March 1985.

“Unemployment, Risk and Earnings: Theory and Evidence from a Model of Equalizing Wage Differentials” (with K. M. Murphy), in *Unemployment and the Structure of Labor Markets*, ed. J. Leonard and K. Lang. London: Basil Blackwell, 1986, pp. 103-140.

“Job Mobility, Search, and Earnings Growth: A Reinterpretation of Human Capital Earnings Functions,” *Research in Labor Economics* **8** (1986): 199-233. Reprinted in *Research in Labor Economics 35th Anniversary Retrospective, 2012*, 401-435.

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The Apple iPod iTunes Antitrust Litigation in the United States District Court for the Northern District of California Oakland Division, No. C 05 00037 YRG, C 06 04457 YRG. Expert on behalf of Apple in iPod antitrust class action. Expert Report, July 19, 2013.

In Re Text Messaging Antitrust Litigation in the United States District Court for the Northern District of Illinois Eastern Division, No. 8 C 7082-MDL No. 1997. Expert on behalf of AT&T, Sprint, T-Mobile, Verizon Wireless and CTIA. Deposition, September 16, 2013.

The Education Management Corp. Shareholder Derivative Action in the Court of Common Pleas of Allegheny County, Pennsylvania, Civil Division, No. GD-12-008785. Expert on behalf of Education Management Corp. in a Fraudulent Job Placement Claim and Incentive-Based Compensation Claim. Expert Report, October 14, 2013.

The J.B. Hunt Transport, Inc. Wage and Hour Litigation in the United States District Court for the Central District of California Western Division, No. 2:07-cv-08336-MWF-FMOx. Expert on behalf of J.B. Hunt Transport, Inc. in California Dedicated Contract Services and Intermodal Services drivers' class action. Declaration and Expert Report, October 17, 2013.

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Highly Confidential Under Protective Order

APPENDIX B: MATERIALS RELIED UPON

Reports and Declarations

- Expert Report of Professor Robert H. Topel, *Cung Le, et al., v. Zuffa, LLC d/b/a Ultimate Fighting Championship and UFC*, Case No. 2:15-cv-01045-RFB-PAL (D. Nev.) (October 27, 2017)
- Sur-Rebuttal Expert Report of Professor Robert H. Topel, *Cung Le, et al., v. Zuffa, LLC d/b/a Ultimate Fighting Championship and UFC*, Case No. 2:15-cv-01045-RFB-PAL (D. Nev.) (February 12, 2018)
- Expert Report of Hal J. Singer, Ph.D., *Cung Le, et al., v. Zuffa, LLC d/b/a Ultimate Fighting Championship and UFC*, Case No. 2:15-cv-01045-RFB-PAL (D. Nev.) (August 31, 2017)
- Rebuttal Expert Report of Hal J. Singer, Ph.D., *Cung Le, et al., v. Zuffa, LLC d/b/a Ultimate Fighting Championship and UFC*, Case No. 2:15-cv-01045-RFB-PAL (D. Nev.) (January 12, 2018)
- Supplemental Expert Report of Hal J. Singer, Ph.D., *Cung Le, et al., v. Zuffa, LLC d/b/a Ultimate Fighting Championship and UFC*, Case No. 2:15-cv-01045-RFB-PAL (D. Nev.) (April 3, 2018)

Other Case Materials

- Singer Backup
- Singer Rebuttal Backup
- Singer Supplemental Backup

Books

- Federal Judicial Center. *Reference Manual on Scientific Evidence*. Washington, D.C.: The National Academies Press (3d ed. 2011)

Exhibit 1: Zuffa Per-Event Costs

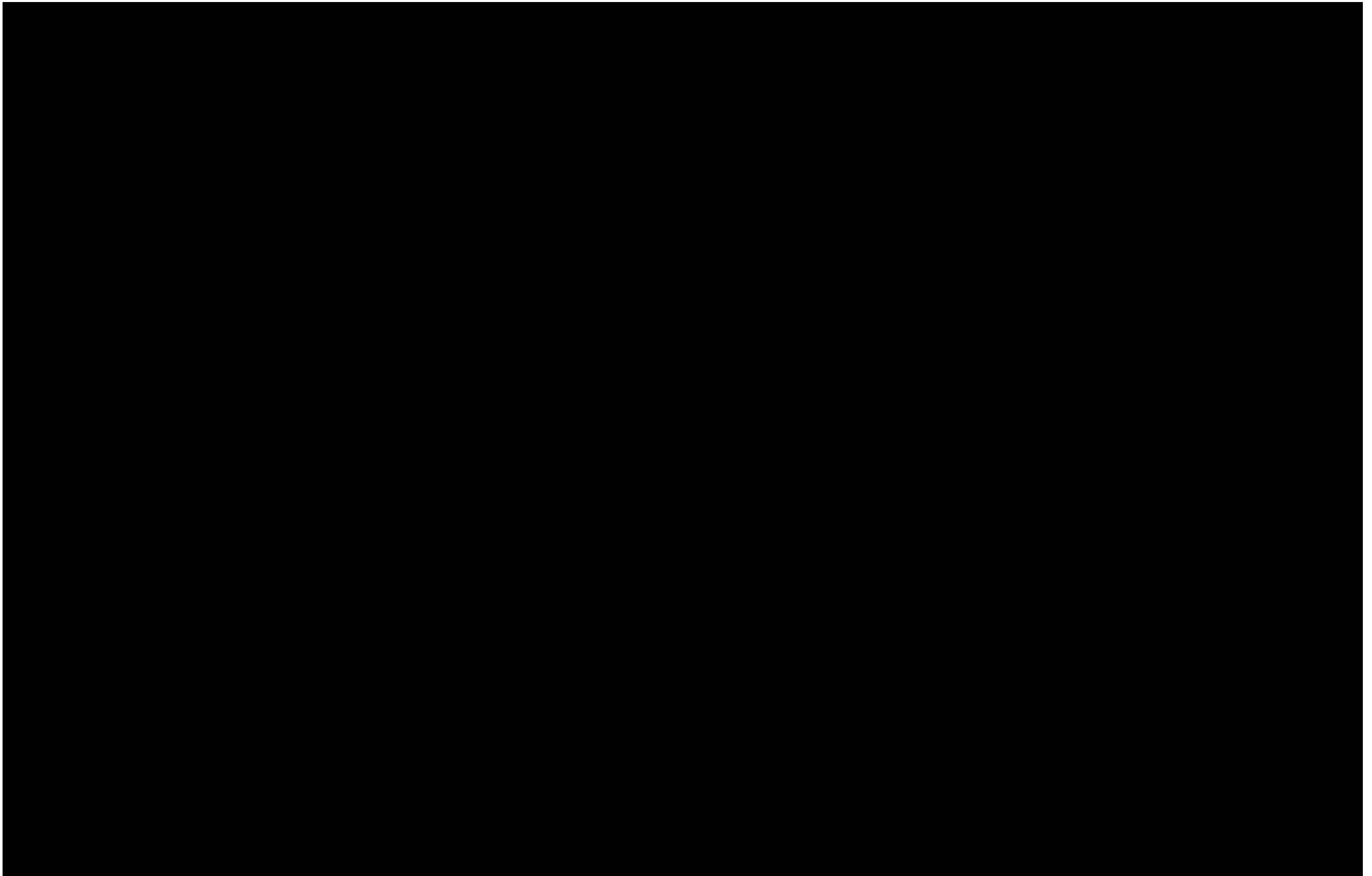


Exhibit 2: Singer Impact Regressions, including Modified Singer Impact Regression with Event Costs on Right Hand Side

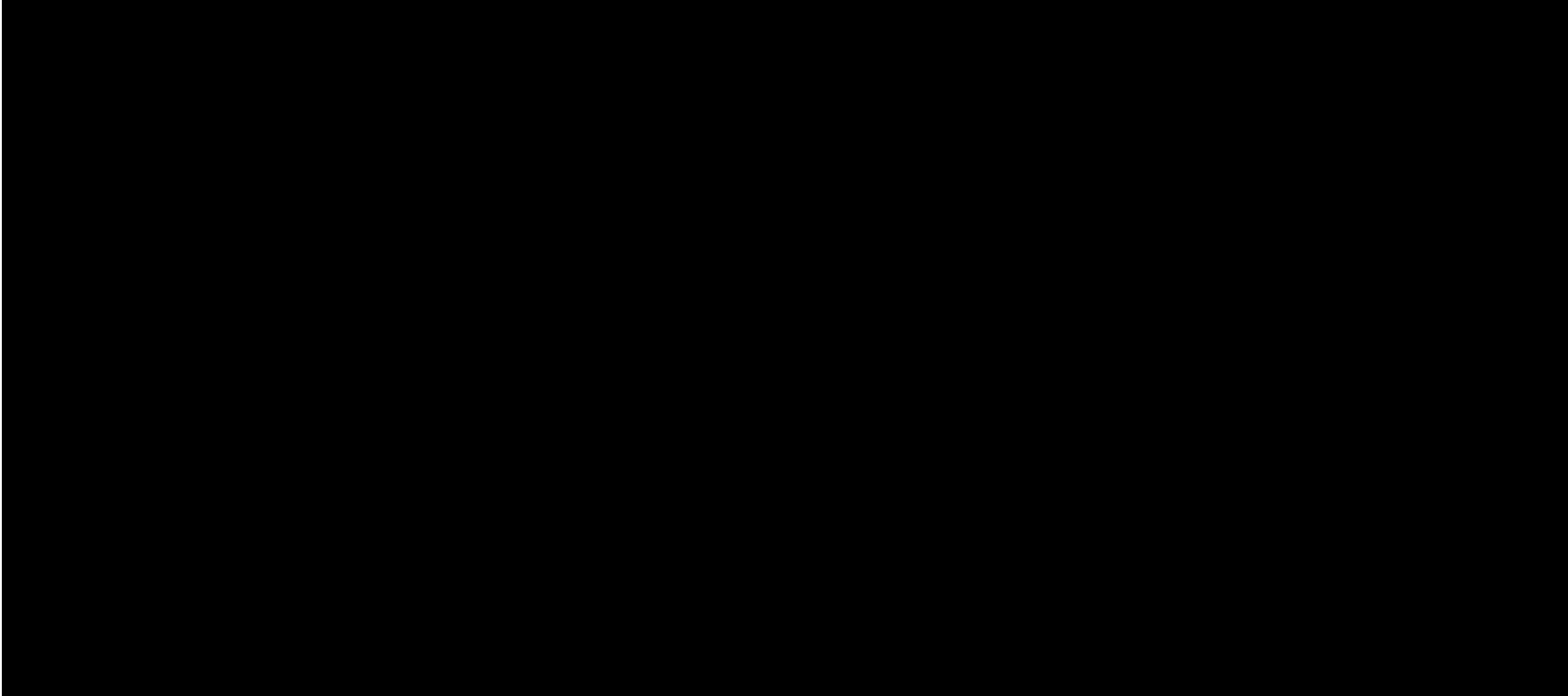


Exhibit 3: Zuffa Event Costs and Revenues in 2009

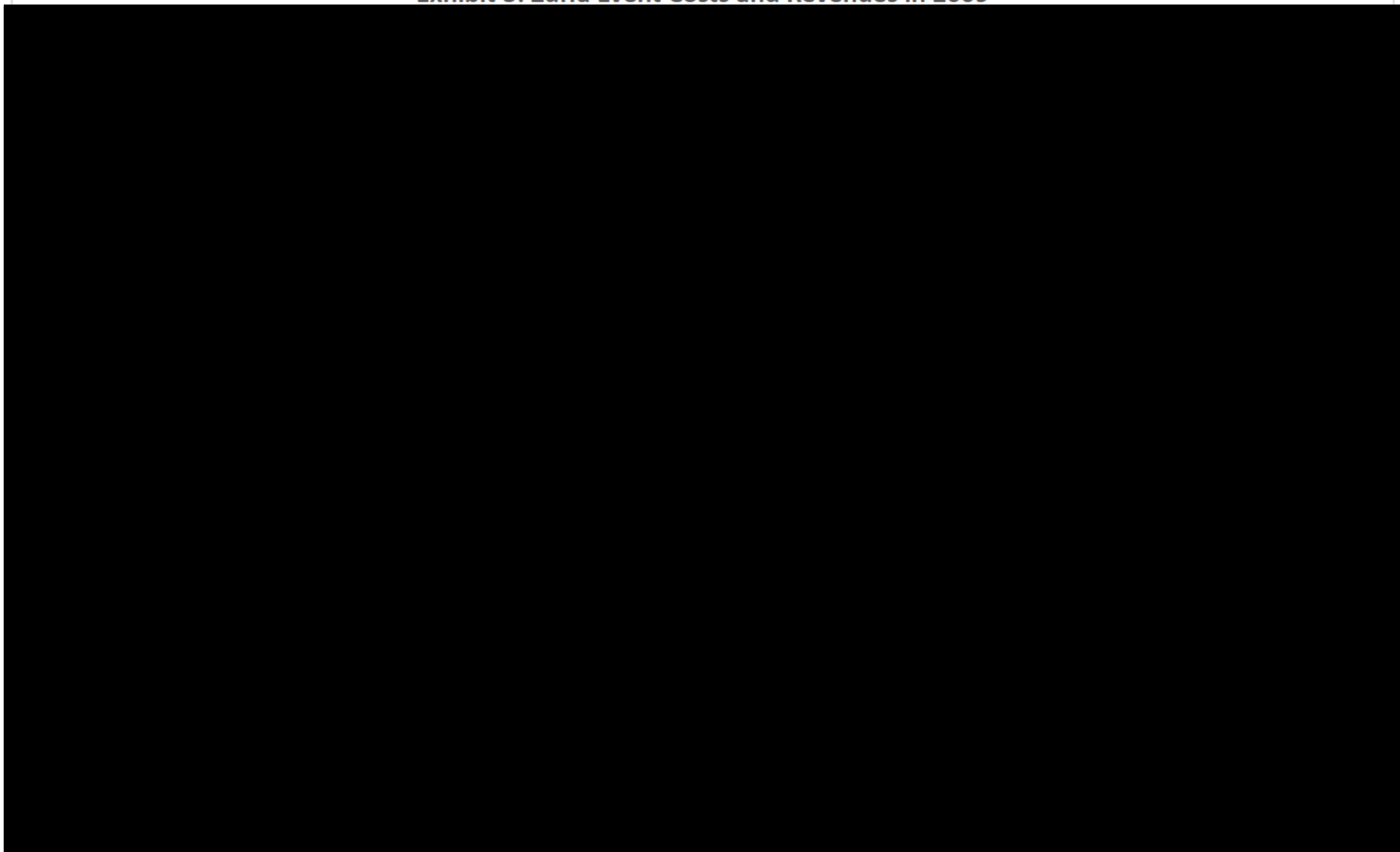


Exhibit 4: Zuffa Event Costs and Revenues in 2010

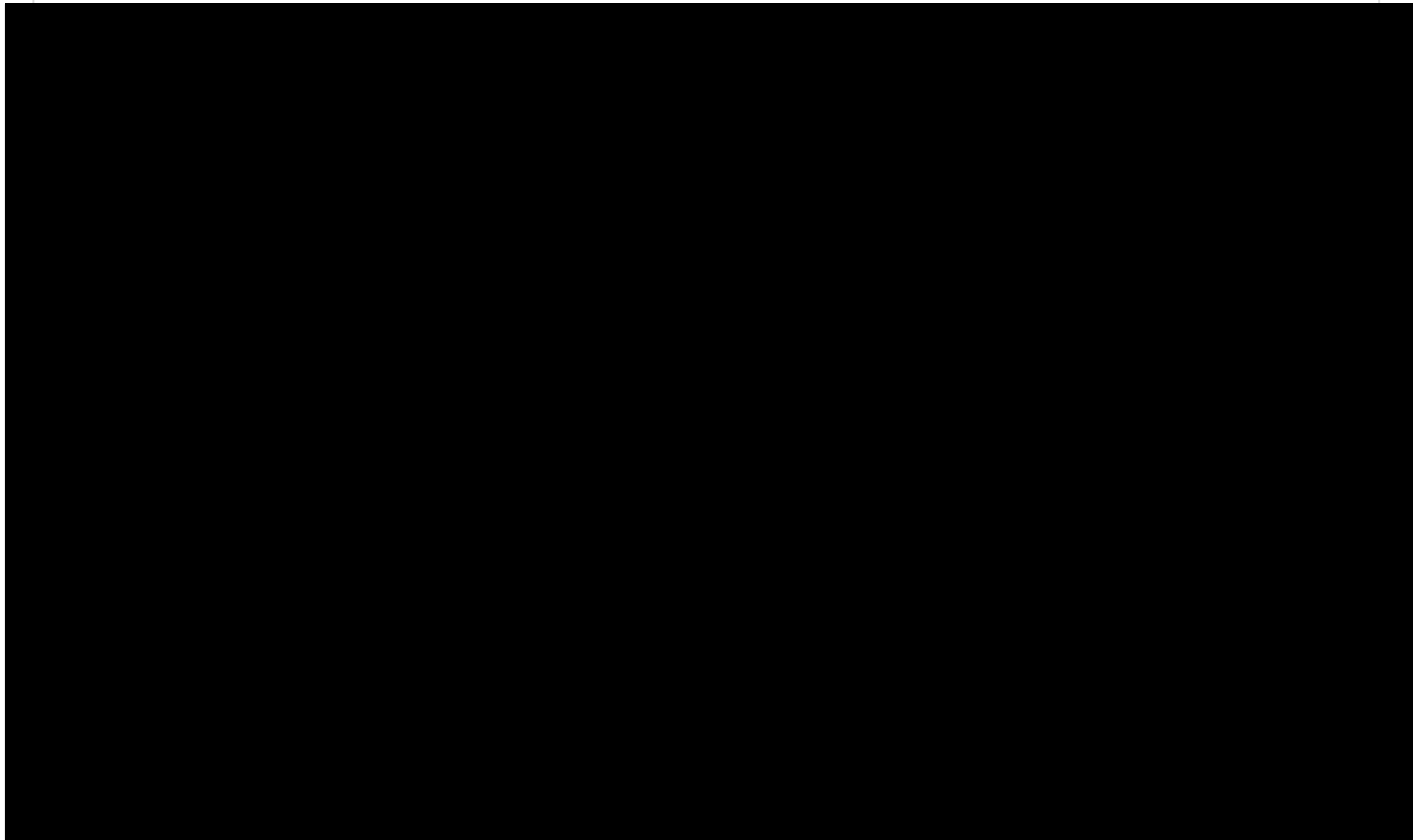


Exhibit 5: Zuffa Event Level Costs, Revenue, and Wage Share

